Amendments to the Claims:

1. (Currently Amended) A method for determining properties of a negative sequence component of a space vector quantity in an electrical network, ~~characterized by comprising~~ wherein the method comprises the steps of determining on the basis of the properties of an ellipse formed by a space vector of the space vector quantity in the electrical network the magnitude of the negative sequence component of the space vector quantity in the electrical network and the location of the negative sequence component of the space vector quantity in the electrical network in relation to a positive sequence component.

2. (Currently Amended) A method according to claim 1, ~~characterized by~~ wherein the step of determining the location of the negative sequence component of the space vector quantity in the electrical network in relation to a positive sequence component comprises determining the angle ~~(α_{min})~~ of the minor semi-axis of the ellipse formed by the space vector of the space vector quantity in the electrical network.

3. (Currently Amended) A method according to claim 1 ~~or 2~~, ~~characterized by comprising~~ wherein the method comprises the steps of determining:

the components of the space vector of the space vector quantity in the electrical network;

the length of the space vector of the space vector quantity and its derivative;

the zeros of said derivative;

the components of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity in the electrical network; and

the lengths of the ~~(l_{maj}, l_{min})~~ of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity.

4. (Currently Amended) A method according to claim 3, ~~characterized by~~ wherein

determining several values for the length of the space vector of the space vector quantity are determined, corresponding to several different moments of time, whereby the difference between two successive moments of time is equal to a sampling period ~~(T_s)~~;

the step for determining the derivative of the space vector of the space vector quantity comprising approximation of the derivative of the space vector of the space vector quantity with a difference ~~(d_k)~~ received by means of the length values of the space vector of the space vector quantity and the sampling period ~~(T_s)~~ corresponding to successive moments of time;

the step for determining the components of the major and minor semi-axes formed by the space vector of the space vector quantity in the electrical network comprising steps where differences ~~(d_{k-1}, d_k)~~ representing the derivative of the space vector of the space vector quantity, corresponding to successive moments of time, are compared with zero, whereby, when the later one ~~(d_k)~~ of successive differences is smaller than zero and when the earlier difference ~~(d_{k-1})~~ is greater than zero, a maximum is concerned, and when the later one ~~(d_k)~~ of successive differences is greater than zero and when the earlier difference ~~(d_{k-1})~~ is smaller than zero, a minimum is concerned;

whereby, when a maximum is found, the current components of the space vector of the space vector quantity in the electrical network are set as components of the major semi-axis vector of the ellipse, and when a minimum is found, the current components of the space vector of the space vector quantity in the electrical network are set as components of the minor semi-axis vector of the ellipse.

5. (Currently Amended) A method according to claim 3 ~~or 4~~, ~~characterized by~~ wherein

~~determining~~ the length ~~(l_{maj}, l_{min})~~ of each semi-axis of the ellipse formed by the space vector of the space vector quantity is determined by summing up the squared components of the semi-axis in question and by taking a square root of this sum;

~~determining~~ the angle (α_{min}) of the minor semi-axis of the ellipse formed by the space vector of the space vector quantity is determined trigonometrically on the basis of the components of the minor semi-axis of the ellipse in question; and ~~that~~

~~determining~~ the length of the negative sequence vector of the space vector quantity in the electrical network is determined by dividing the difference of the lengths (l_{maj}, l_{min}) of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity by two.

6. (Currently Amended) A method according to ~~any one of claims 3 to 5~~ claim 3, ~~characterized by further comprising~~ wherein the method further comprises a step where by means of low-pass-filtering components of the space vector of the space vector quantity in the electrical network, the components containing substantially only a fundamental wave are provided, whereby the angle of (α_{min}) the minor semi-axis of the ellipse formed by the space vector of the space vector quantity and the magnitude of the negative sequence component of the space vector quantity in the electrical network are determined on the basis of the space vector of the space vector quantity formed by said components containing substantially only a fundamental wave.

7. (Currently Amended) A method according to ~~any one of the preceding claims, characterized by~~ claim 1, wherein said space vector quantity in the electrical network being ~~is~~ voltage ~~(u_2)~~.

Please add the following new claims:

8. (New) A method according to claim 2, wherein the method comprises the steps of determining:

the components of the space vector of the space vector quantity in the electrical network;

the length of the space vector of the space vector quantity and its derivative;

the zeros of said derivative;

the components of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity in the electrical network; and

the lengths of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity.

9. (New) A method according to claim 8, w h e r e i n

several values for the length of the space vector of the space vector quantity are determined, corresponding to several different moments of time, whereby the difference between two successive moments of time is equal to a sampling period;

the step for determining the derivative of the space vector of the space vector quantity comprising approximation of the derivative of the space vector of the space vector quantity with a difference received by means of the length values of the space vector of the space vector quantity and the sampling period corresponding to successive moments of time;

the step for determining the components of the major and minor semi-axes formed by the space vector of the space vector quantity in the electrical network comprising steps where differences representing the derivative of the space vector of the space vector quantity, corresponding to successive moments of time, are compared with zero, whereby, when the later one of successive differences is smaller than zero and when the earlier difference is greater than zero, a maximum is concerned, and when the later one of successive differences is greater than zero and when the earlier difference is smaller than zero, a minimum is concerned;

whereby, when a maximum is found, the current components of the space vector of the space vector quantity in the electrical network are set as components of the major semi-axis vector of the ellipse, and when a minimum is found, the current components of the space vector of the space vector quantity in the electrical network are set as components of the minor semi-axis vector of the ellipse.

10. (New) A method according to claim 4, w h e r e i n

the length of each semi-axis of the ellipse formed by the space vector of the space vector quantity is determined by summing up the squared components of the semi-axis in question and by taking a square root of this sum;

the angle of the minor semi-axis of the ellipse formed by the space vector of the space vector quantity is determined trigonometrically on the basis of the components of the minor semi-axis of the ellipse in question; and

the length of the negative sequence vector of the space vector quantity in the electrical network is determined by dividing the difference of the lengths of the major and minor semi-axes of the ellipse formed by the space vector of the space vector quantity by two.

11. (New) A method according to claim 4, w h e r e i n the method further comprises a step where by means of low-pass-filtering components of the space vector of the space vector quantity in the electrical network, the components containing substantially only a fundamental wave are provided, whereby the angle of the minor semi-axis of the ellipse formed by the space vector of the space vector quantity and the magnitude of the negative sequence component of the space vector quantity in the electrical network are determined on the basis of the space vector of the space vector quantity formed by said components containing substantially only a fundamental wave.

12. (New) A method according to claim 5, w h e r e i n the method further comprises a step where by means of low-pass-filtering components of the space vector of the space vector quantity in the electrical network, the components containing substantially only a fundamental wave are provided, whereby the angle of the minor semi-axis of the ellipse formed by the space vector of the space vector quantity and the magnitude of the negative sequence component of the space vector quantity in the electrical network are determined on the basis of the space vector of the space vector quantity formed by said components containing substantially only a fundamental wave.